any group of hydrophobic type that, as compared to where X is hydrogen, limits the diffusion of the α-keto acid produced by the deamination of the cyclic amino acid, in a hydrophilic medium, or

any group that binds to constituents of the cells of the microorganisms, and (2) a revealing agent.

REMARKS

Claims 22-47 are pending. By the Office Action, claim 47 is objected to and claims 22-47 are rejected. By this Amendment, claims 22, 30 and 47 are amended. No new matter is added.

The attached Appendix includes a marked-up copy of the rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Entry of the amendment is proper under 37 CFR §1.116 since the amendment: (a) places the application in condition for allowance; (b) does not raise any new issue requiring further search and/or consideration (since the amendment amplifies issues previously discussed throughout prosecution); (c) does not present any additional claims without canceling a corresponding number of finally rejected claims; and (d) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to formality issues raised in the final rejection. Entry of the amendment is thus respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representatives by Examiner Gitomer in the August 20, 2002 personal interview. Specifically, claims 22, 30 and 41 are amended to comply with the Examiner's helpful suggestions made during the interview. Applicants' further separate record of the substance of the interview is incorporated into the following remarks.

I. CLAIM AMENDMENTS

Support for the amendments to claims 22, 30 and 47 can be found in the present specification at page 5, line 33 to page 6, line 7, page 7, lines 14-25, and in the original claims.

II. OBJECTION

Claim 47 is objected to for reciting the phrase "hydrophobic medium." By this Amendment, claim 47 is amended to correct this typographical error. Claim 47 now correctly recites "hydrophilic medium." This amendment is made to correct a typographical error and is not a further limitation. Reconsideration and withdrawal of the objection are respectfully requested.

II. SECTION 112

Claims 22-47 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. Applicants respectfully traverse the rejection.

The Office Action indicates that claims 22-47 are vague and indefinite for claiming the chemical group "X" functionally without recitation of any specific chemical structure. Applicants respectfully disagree.

MPEP §2173.05(g) states that: "there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971)." MPEP §2173.05(g) cites an example illustrating the issue of whether a functional limitation complies with §112, second paragraph, and states that "it was held that the limitation used to define a radical on a chemical compound as 'incapable of forming a dye with said oxidizing developing agent' although functional, was perfectly acceptable because it set definite

boundaries on the patent protection sought. *In re Barr*, 444 F.2d 588, 170 USPQ 33 (CCPA 1971)."

Applicants submit that, in view of MPEP §2173.05(g) and *in re Barr*, claims 22-47 comply with §112, second paragraph. Although functional, the claimed feature: "X represents a group other than hydrogen that, as compared to where X is hydrogen, limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid" of claims 22 and 30, and the claimed feature "X represents any group of hydrophobic type that, as compared to where X is hydrogen, limits the diffusion of the α-keto acid produced by the deamination of the cyclic amino acid, in hydrophilic medium" of claim 47, are perfectly acceptable because they set definite boundaries on the patent protection sought. In particular, they clearly define what is within the scope of the claims, which is all that is required by the definiteness requirement.

The Office Action addresses claims 23, 31 and 47, stating that the terms "hydrophobic groups" and "any group of the hydrophobic type" are considered to be unduly broad and encompass more than the specification could possibly support. MPEP §2173.04 states that "breadth of a claim is not to be equated with indefiniteness. *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced is clear, and if Applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. §112, second paragraph." Applicants submit that the phrases "hydrophobic groups" and "any group of the hydrophobic type" clearly define the scope of the subject matter embraced by the claim, and that Applicants have not otherwise indicated that they intend the invention to be of a different scope.

For at least these reasons, Applicants submit that claims 22-47 satisfy the requirements of 35 U.S.C. §112, second paragraph. Reconsideration and withdrawal of the rejection are respectfully requested.

III. SECTION 102

Claims 30, 31 and 45-47 are rejected under 35 U.S.C. §102(b) as being anticipated by each of U.S. Patent No. 4,937,352 to Voelter (Voelter), U.S. Patent No. 4,507,230 to Tam et al. (Tam), U.S. Patent No. 5,668,254 to Deghengi (Deghengi) and U.S. Patent No. 5,173,434 to Morris et al. (Morris). Applicants respectfully traverse the rejection.

A. Claims 30, 31, 45 and 46

Claim 30 claims a compound having the general formula (I) in which R represents a cyclic amino acid radical, substituted with 2 or 3 groups X, which are identical or different, and X represents a group other than hydrogen that, as compared to where X is hydrogen, limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid. Applicants submit that none of the cited references teach such a compound.

The Office Action indicates that "it is the Examiner's position that the term 'X' reads on hydrogen substitutions as well as non-hydrogen substitutions." Applicants respectfully disagree.

As discussed in the personal interview, one of ordinary skill in the art would understand that hydrogen is not a group that limits diffusion in culture medium of an α-keto acid produced by deamination of a corresponding cyclic amino acid. Claim 30 has been amended to make explicit that which was implicit, i.e., that X represents a group other than hydrogen. Accordingly, as discussed in the personal interview, none of the cited references teach at least the following claimed feature: substituted with 2 or 3 groups X, which are identical or different, and X represents a group other than hydrogen that, as compared to

where X is hydrogen, limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid.

For at least these reasons, Applicants submit that none of the cited reference teach every feature of claim 30. Accordingly, claim 30 is not anticipated by the cited references. Claims 31, 45 and 46 depend from claim 30, and thus include all of its limitations. Accordingly, claims 31, 45 and 46 are not anticipated by the cited references for at least the same reasons as claim 30.

B. Claim 47

Claim 47, is directed to a detection agent comprising 1) at least one compound having the general formula (I) in which R represents a cyclic amino acid radical, substituted with 1 group X that is any group of hydrophobic type that, as compared to where X is hydrogen, limits the diffusion of the α-keto acid produced by the deamination of the cyclic amino acid, in a hydrophilic medium, and 2) a revealing agent. None of the cited references teach the detection agent of claim 47.

Voelter discloses N-substituted histidine derivatives, Tam discloses a compound for deprotection of amino acid residues during peptide synthesis, Denghenghi discloses D-2-alkyl-tryptophan and Morris discloses adding NaOH to a chamber containing p-nitrophenylalanine to detect the presence of an enzyme. However, none of the cited references teach at least the following claimed feature: a detection agent comprising at least one compound (as claimed in claim 47) and a revealing agent.

For at least these reasons, Applicants submit that none of the cited reference teach every feature of claim 47. Accordingly, claim 47 is not anticipated by the cited references.

C. Conclusion

For at least the reasons discussed above, Applicants submit that claims 30, 31 and 45-47 are not anticipated by any of Voelter, Tam, Deghengi or Morris. Reconsideration and withdrawal of the rejection are respectfully requested.

IV. SECTION 103

Claims 22, 23, 25-29 and 36-44 are rejected under 35 U.S.C. §103(a) as being unpatentable over Morris in view of U.S. Patent No. 3,725,203 to Sellers (Sellers). Applicants respectfully traverse the rejection.

A. Claims 36-42

Claims 36-42 depend from claims 30. Morris, alone or in combination with Sellers, does not teach or suggest every feature of claim 22.

As discussed above, Morris does not teach every feature of claim 30. In addition, Morris does not provide suggestion or motivation to modify its disclosure to achieve the claimed compound having the general formula (I) in which R represents a cyclic amino acid radical, substituted with 2 or 3 groups X that limit the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid.

In fact, Morris teaches away from the claimed invention by disclosing p-nitrophenylalanine. As discussed below, the p-nitrophenyl substituent of p-nitrophenylalanine is not a compound that limits diffusion, and actually promotes diffusion. Accordingly, Morris does not teach or suggest every feature of claim 30.

Sellers does not overcome the deficiencies of Morris. Specifically, Sellers does not teach or suggest at least a compound having the general formula (I) in which R represents a cyclic amino acid radical, substituted with 2 or 3 groups X that limit the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid.

For at least these reasons, Applicants submit that neither Morris nor Sellers, alone or in combination, teach or suggest every feature of claim 30. Accordingly, claim 30 would not have been obvious based on the disclosure of Morris, alone or in combination with Sellers. Claims 36-42 depend from claim 30, and thus include all of its limitations. Accordingly, claims 36-42 would not have been obvious for at least the same reasons as claim 30.

B. Claims 22, 23, 25-29, 43 and 44

Claim 22, is directed to a method for detecting and identifying and/or quantifying an enzymatic activity of a microorganism, according to which an inoculum suspected of containing a microorganism with a deaminase activity is brought into contact with a culture medium for microorganisms, wherein the culture medium comprises at least one detection agent of the general formula (I) in which R represents a cyclic amino acid radical, substituted with 1 to 3 groups X, which are identical or different, X represents a group other than hydrogen that, as compared to where X is hydrogen, limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid. Morris, alone or in combination with Sellers, does not teach or suggest every feature of claim 22.

Morris discloses a process for measuring fluorescence that uses p-nitrophenylalanine. Applicants submit that p-nitrophenyl is not a group that limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid. As indicated in the Manafi M. & Rotter article (discussed on page 3, lines 8-13, of the original specification and submitted to the Patent Office in an Information Disclosure Statement on May 2, 2000, that was considered by the Examiner on July 18, 2001), diffusion is detrimental to markers of enzymatic activity, such as nitrophenyl. Based on the disclosure of diffusion being detrimental for p-nitrophenyl groups, and the fact that p-nitrophenyl confers hydrophilic properties to a reaction product and thus promotes diffusion, Applicants submit that p-nitrophenyl is not a group which limits the diffusion in the culture medium of the α-

keto acid produced by the deamination of the cyclic amino acid. Accordingly, Morris does not teach or suggest every feature of claim 22.

Sellers does not overcome the deficiencies of Morris. Specifically, Sellers does not teach or suggest at least a method wherein the culture medium comprises at least one detection agent of the general formula (I) in which R represents a cyclic amino acid radical, substituted with 1 to 3 groups X, which are identical or different, X represents a group other than hydrogen that, as compared to where X is hydrogen, limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid.

For at least these reasons, Applicants submit that neither Morris nor Sellers, alone or in combination, teach or suggest every feature of claim 22. Accordingly, claim 22 would not have been obvious based on the disclosure of Morris, alone or in combination with Sellers. Claims 23, 25-29, 43 and 44 depend from claim 22, and thus include all of its limitations. Accordingly, claims 23, 25-29, 43 and 44 would not have been obvious for at least the same reasons as claim 22.

C. Conclusion

For at least the reasons discussed above, Applicants submit that claims 22, 23, 25-29 and 36-44 would not have been obvious over Morris, alone or in combination with Sellars. Reconsideration and withdrawal of the rejection are respectfully requested.

V. CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 22-47 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

William P. Berridge
Registration No. 30,024

Philip A. Caramanica, Jr.
Registration No. P-51,528

WPB:PAC/da

Attachment:
Appendix

Date: August 23, 2002

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461

APPENDIX

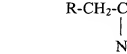
Changes to Claims:

The following are marked-up versions of the amended claims:

22. (Twice Amended) Method for detecting and identifying and/or quantifying an enzymatic activity of a microorganism, according to which an inoculum ~~which is capable~~suspected of containing a microorganism with a deaminase activity is brought into contact with a culture medium for microorganisms,

wherein the culture medium comprises at least one detection agent for demonstrating, by forming a colored product with a revealing agent, an enzymatic activity;

said detection agent being an L-amino acid of following general formula (I):



in which:

- R represents a cyclic amino acid radical, substituted with 1 to 3 groups X, which are identical or different,
- X represents a group ~~which~~ other than hydrogen that, as compared to where X is hydrogen, limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid.

30. (Twice Amended) A compound having the general formula (I):

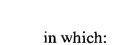
in which:

- R represents a cyclic amino acid radical, substituted with 2 or 3 groups X, which are identical or different,

- X represents a group other than hydrogen that, as compared to where X is hydrogen, ~~which~~ limits the diffusion in the culture medium of the α-keto acid produced by the deamination of the cyclic amino acid.

47. (Amended) ~~Compound~~ Detection agent comprising:

(1) at least one compound having the general formula (I):



in which:

- R represents a cyclic amino acid radical, substituted with 1 group X,
- X represents:

any group of hydrophobic type that, as compared to where X is hydrogen, ~~which~~ limits the diffusion of the α-keto acid produced by the deamination of the cyclic amino acid, in a ~~hydrophobic~~ hydrophilic medium, or

any group ~~which makes it possible to bind~~that binds to constituents of the cells of the microorganisms, and

(2) a revealing agent.

~~with the exception of the compounds N-im-benzyl-L-histidine, 1- and 3-methyl-L-histidine, o-benzyl-L-tyrosine, o-carboxybenzoyl-L-tyrosine, o-dansyl-L-tyrosine, o-methyl-L-tyrosine and 1-, 4-, 5-, 6- and 7-methyl-L-tryptophan.~~